

REMARKS

1. In the above-captioned Office Action, the Examiner rejected claims 1-3 and 16-20 under 35 U.S.C. §102(b) as being anticipated by Patchen (U.S. Patent No. 3,785,459). Claims 1-6, 8-13 and 15 were rejected under 35 U.S.C. §103(a) given Aoyama (JP 06272708) in view of Chatterton (U.S. Patent No. 2,534,573). Claims 7 and 14 were rejected under 35 U.S.C. §103(a) given Aoyama in view of Chatterton and in further view of Kaufman (U.S. Patent No. 4,231,623). These rejections are traversed and reconsideration is hereby respectfully requested.

2. Claims 1-3 and 16-20 were rejected under 35 U.S.C. §102(b) as being anticipated by Patchen. Prior to discussing the merits of the Examiner's position, the applicant believes it would be helpful to first briefly describe and characterize the Patchen reference.

THE PATCHEN REFERENCE

As stated in Patchen:

It is [an] ... object of this invention to provide asymmetrical timing for oil flow through the connecting rod ... [Column 2, lines 28-29].

While the various charts illustrate a variation in the rate of the oil flow characteristic, it was concluded that asymmetrical timing for the initiation and termination of oil transmission through the connecting rod was necessary. Start of communication was preferred not to be earlier than 40° before top dead center or later than top dead center and continuing for not less than 90° or for more than 180°. By varying the *initiation and termination of communication* to provide oil flow through the connecting rod, the desired rate and flow characteristics may be achieved [Column 6, line 65 through column 7, line 7, emphasis added].

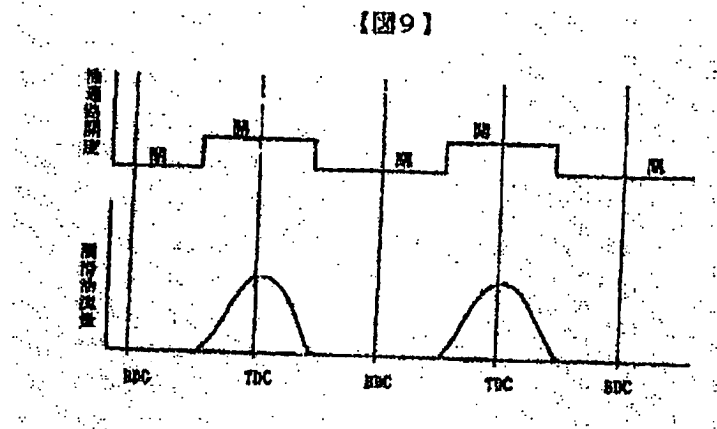
Patchen therefore describes asymmetrical timing for oil flow through the connecting rod, wherein Patchen starts and stops oil communication. Thus, Patchen does *not* describe *the first groove in constant fluid communication with the first passage*, as set forth in independent claims 1 and 11 as amended above, nor *substantially continuously spraying the lubrication fluid from the connecting rod assembly onto the piston*, as set forth in independent claim 16 as amended above.

Hence, the applicant respectfully submits that claims 1, 11, and 16 in their amended form may be passed to allowance.

Furthermore, claims 2, 3, and 17-20 are dependent upon an independent claim that is shown to be allowable. For all these reasons, the dependent claims are themselves allowable.

3. Claims 1-6, 8-13, and 15 were rejected under 35 U.S.C. §103(a) given Aoyama in view of Chatterton. Claims 7 and 14 were rejected under 35 U.S.C. §103(a) given Aoyama in view of Chatterton and in further view of Kaufman.

Aoyama teaches providing an intermittent oil supply to cool the piston, which supply depends on crank angle. As Aoyama shows in drawing 9,



the oil flow to cool the piston starts and stops depending on the crank angle, e.g., starts before top dead center (TDC) and stops after TDC. Referring to Aoyama's drawing 1, fluid communication to oil passage 20 is accomplished during alignment of bearing groove 17 on crankshaft 5, with groove 19 on connecting rod 1. As crankshaft 5 rotates the overlap of bearing groove 17 and groove 19 is terminated, thus terminating the fluid communication. Aoyama does not teach a constant fluid communication. In fact, Aoyama teaches the opposite, because bearing groove 17 is open for free passage of oil only for a predetermined angle-of-rotation range of the crankshaft 5 and the passage is terminated for a predetermined angle of rotation. Thus, Aoyama does not describe the first groove in constant fluid communication with the first passage, as set forth in independent claims 1 and 11 as amended above, nor substantially continuously spraying the lubrication fluid from the connecting rod assembly onto the piston, as set forth in independent claim 16 as amended above.

Kaufman teaches increasing the rigidity of a liner by virtue of a circumferential groove formed therein to facilitate handling prior to and during heat treatment, to lower forming stresses, and to reduce distortion during heat treatment (col. 2, lines 48-53). Kaufman does not teach or suggest fluid transfer to the connecting rod through his groove, nor any similar concept. Aoyama teaches away from a continuous fluid communication to the passage of the connecting rod. Kaufman makes no teaching to overcome this teaching of Aoyama. For these reasons, one skilled in the art would not be compelled to combine Kaufman and Aoyama.

Thus, the claims of the present invention are not taught or suggested by Aoyama, Chatterton, and/or Kaufman. Combining these references fails to teach or yield the invention as claimed. The combination of these references fails to teach or suggest all the elements of the claims. Further, one of skill in the art would not be motivated to make such a combination. Therefore, the present invention is not obvious in light of any combination of Aoyama, Chatterton and/or Kaufman.

Hence, the applicant respectfully submits that claims 1, 11, and 16 in their amended form may be passed to allowance.

Furthermore, claims 2-6, 8-10, 12, 13, and 15 are dependent upon an independent claim that is shown to be allowable. For all these reasons, the dependent claims are themselves allowable.

4. No new subject matter is introduced by the amendments to the above claims or the addition of the new claims.

5. The Examiner is invited to contact the undersigned by telephone or facsimile if the Examiner believes that such a communication may advance the prosecution of the present application. Notice of allowance of claims 1-24 is hereby respectfully requested.

Respectfully submitted,

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